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CENTRAL INTELLIGENCE AGENCY

REPORT

INFORMATION REPORT

CD NO.

COUNTRY Germany (Russian Zone)

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SUBJECT Production of Turbine Blades

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1. The experiments carried out with the precision casting of turbine blades at Kabelwerk Oberspree are considered to have been successful enough to rely entirely on this process for the supply of blades for steam turbines for the Soviet Zone, and in particular the Bergmann-Borsig and G8rlitz turbine factories.
2. Chrome-nickel (molybdenum) has proved the most practical alloy for use in steam turbines and will be used for quantity production. Stainless steel is also suitable. The raw material is in strip form (Flachmaterial). Because of the great difference between the size of the vane base piece and the blade, the former is separately "fused" (angestaucht) to the blade material. The blade is then pressed at a temperature of 700°C in one process and with one die. After cooling, the blade is reheated in a furnace by a method quite normal for the "Ausspannung des Metalls". The rough edges of the blade are then machine-finished with a simple double-spindled miller. After that there remains 0.3 mm of material to be taken off from the neck and shoulders of the blade where it joins the base.
3. Blades of 60 mm length are being pressed currently. No difficulty is foreseen in the future pressing of blades 300 mm in length. It is planned to experiment further with blades of 500 mm length.
4. The mass production of blades is only limited by the life of the die. It is expected that it will be possible to press 300 to 500 blades with the present die before retempering becomes necessary. A die metal, however, is now being sought which will allow the pressing of 2,500 blades.
5. The same process as the above can be used for gas turbines, but there is little demand for these at present.
6. The DWK is giving full support to the new process and is assisting in the experiments.
7. Up to the present, there are no signs that the turbines themselves are being built.

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